

## **CLAIMS**

1. A leak detector for connection to an air supply, the leak detector being adapted to deliver vapour under pressure to a system for detecting leaks in the system, the leak detector comprising:
  - a tank defining a fluid chamber for holding a quantity of fluid, the tank further defining an inlet and outlet;
  - a first conduit for delivering air from the air supply to the fluid chamber, the first conduit having a first end for attachment to the air supply and a second end received in the inlet, the second end of the conduit being positioned to direct a flow of air from the air supply into said fluid chamber against said fluid thereby generating a vapour; and
  - a second conduit for delivering the vapour from said fluid chamber to the system, the second conduit having a first end received in the outlet and a second end receivable in said system for delivering the vapour under pressure to said system for testing for leaks in the system.
2. A leak detector according to claim 1 further comprising a housing defining a chamber, the housing defining first and second openings, wherein the tank is located in said chamber, the first conduit being received through the first opening in the housing and the second conduit being received through the second opening of the housing.
3. A leak detector according to claim 1 wherein the vapour is fog.
4. A leak detector according to claim 1 wherein the fluid is a mineral oil based fluid.
5. A leak detector according to claim 1 wherein the pre-fog fluid includes a reflective pigment.

6. A leak detector according to claim 1 further comprising a spray nozzle attached to the second end of the first conduit for directing the flow of air against said pre-fog fluid.
7. A leak detector according to claim 2 wherein the leak detector further includes first and second valves located in the housing and connected to the second conduit, said first and second valves being operationally connected to a pressure sensitive switch for preventing flow of the vapour through the second conduit when a preset pressure level is reached.
8. A leak detector according to claim 7 further including a pressure gauge located in the housing and an air pressure conduit in fluid communication between the second conduit and the pressure gauge whereby vapour flows from the second conduit through the air pressure conduit to the pressure gauge for measurement of the pressure of the vapour leaving the second conduit.
9. A leak detector according to claim 2 further including an air pressure regulator located in the first conduit, the air pressure regulator defining a passageway and an inlet and an outlet in fluid communication with the passageway for permitting air from the first conduit to flow through the air pressure regulator whereby the air pressure regulator regulates the pressure of air flowing through the first conduit.
10. A leak detector according to claim 2 further including an air valve located in the first conduit for preventing air flow through the first conduit when a pre-set air pressure is reached in the first conduit.
11. A leak detector for connection to an air supply, the leak detector being adapted to deliver a vapour under pressure to a system for detecting leaks in the system, the leak detector comprising:

- a housing defining a chamber, the housing further defining first and second openings;
  - a tank located in the chamber, the tank defining a fluid chamber for holding a quantity of fluid, the tank further defining an inlet and outlet;
  - a first conduit for delivering air from the air supply to the fluid chamber, the first conduit having a first end for attachment to the air supply and a second end received through the first opening of said chamber and through the inlet of the fluid chamber for delivering air from the air supply to the fluid chamber, the second end of the first conduit being positioned in the fluid tank to direct air against the fluid whereby a vapour is generated in the tank by contact of the air against the fluid; and
  - a second conduit located in the chamber for delivering vapour from said fluid chamber to the system, the second conduit having a first end received in the outlet of the fluid chamber and a second end received through the second opening of the housing for connection to the system;
12. A leak detector according to claim 11 wherein the vapour is fog.
13. A leak detector according to claim 12 wherein the fluid is a mineral oil based fluid.
14. A leak detector according to claim 13 wherein the fluid includes a reflective pigment.
15. A leak detector according to claim 13 where the pigment is selected from the group consisting of alkaline aluminate photoluminescence pigment, zinc sulphide and rare earth.

16. A leak detector according to claim 11 further including an air pressure regulator located in the first conduit for controlling the pressure of air from in the first conduit.
17. A leak detector according to claim 11 further including a check valve coupled to the first conduit for preventing vapour from the fluid chamber from flowing into the first conduit.
18. A leak detector according to claim 11 further including an external air gauge located in the housing operatively connected to the second conduit.
19. A leak detector according to claim 11 further including:
  - an air valve located in the first conduit for regulating air flow through said first conduit; and
  - a pressure sensitive switch operatively connected to the air valve for closing the air valve to prevent air flow when a preset pressure level is reached.
20. A leak detector for delivering vapour under pressure to a system for detecting leaks in the system, the leak detector comprising:
  - a fluid tank defining a chamber therein, the fluid tank defining first and second openings;
  - a vapour producing fluid located in the fluid tank;
  - an air supply;
  - a first conduit for delivering air from the air supply to the fluid tank, the first conduit having a first end attached to the air supply and a second end received in the first opening of said fluid tank; and

- A second conduit for delivering the vapour from said fluid tank to the system, the second conduit having a first end received in the second opening of the fluid tank and a second end receivable in said system.